Control and telecontrol for small data volume

SICAM CMIC

The smart unit for your distribution network

With new expansion modules

www.siemens.com/sicam
Simply smart: The compact telecontrol unit
SICAM CMIC compact micro

Three-stage intelligence

| Supervision/monitoring | High availability  
| Telecontrol            | Minimizing downtime  
|                        | Safety isolation after fault and restoral of supply  
| Load flow control      | Management of distributed infeeds  
|                        | Minimizing losses  

![Diagram of telecontrol system]
Outstanding performance: SICAM CMIC gives you a clear advantage

SICAM CMIC is a universal system. It is suitable for electrical distribution substations, gas distribution substations, hydropower plants, pipelines, railway power supplies, as well as in property protection or for alarm signaling.

Your advantages at a glance:

- **Link it up:**
  Coupling of additional devices thanks to integrated gateway functionality

- **Set it up:**
  Project planning, diagnostics and tests with SICAM WEB, alternatively with SICAM TOOLBOX II

- **Be mobile:**
  Optimize your work through remote maintenance, remote diagnosis and remote parameterization

- **Control with confidence:**
  Interlocking and local control in compliance with IEC 61131-3 thanks to smart user programs

- **Keep everything under control:**
  Local operation and indication via a display and function keys

- **Make it easy for yourself:**
  Data storage on SD card; plug-and-play for start-up and service

- **Stay flexible:**
  Adaptable to virtually all monitoring and control functions by using the new expansion modules (up to 6 per SICAM CMIC)

- **Enhance your security:**
  IPSec-protected communication to the remote site; Remote maintenance via https with SICAM WEB and SICAM TOOLBOX II; fault diagnosis via SNMPV3*

*simple network management protocol
(for diagnostic function with vendor-neutral software)
Versatility across the board: SICAM CMIC makes it possible

Future-proof and universally applicable
The economic demands on virtually all power supply processes are increasing: That's why it is imperative to make more intensive and more reliable use of existing operating resources. To do this, small substations are being automated to an increasing extent and integrated in modern, efficient control systems – for comprehensive and reliable system management. What this requires, in addition to straightforward monitoring functionality, are control functions and the integration of other equipment. SICAM CMIC provides all this and more – check it out for yourself.

Small and rugged in any location
Ambient conditions often place high demands on supply substations. No matter whether they are transformer substations, utilities substations, or small telecontrol stations – they usually lack heating and air-conditioning systems to guarantee adequate ambient conditions. This is exacerbated by restricted space, which requires a very high degree of electromagnetic compatibility (EMC). SICAM CMIC is perfectly equipped to tackle these challenges. The device is suitable for broad application in the field, and can be deployed within a temperature range from –40 to +70 °C and where strict EMC requirements apply.

Flexible and easy to maintain
The SICAM CMIC SD memory card has a number of functions. First of all, it provides data for parameterizing the SICAM device. This means that your current parameters are always available locally, making complicated PC-based loading procedures a thing of the past. Secondly, exchanging devices for service purposes is a simple plug-and-play process, because the configuration is transferred directly to the replacement device with the SD memory card. Together with the extensive remote-fault diagnosis options, this reduces downtimes to a minimum, from hours to a matter of minutes.
Easy to operate: Keep yourself in the picture

Expandable and multi-disciplinary
Thanks to its node functionality SICAM CMIC is flexible and can even be used as a telecontrol substation with any form of communication to the control center. If the signal range of a SICAM CMIC is not adequate, there are max. 6 expansion modules available. Freely programmable user programs for local direct control, interlocking or feedback control complete the extensive functionality of SICAM CMIC.

Communicative and always in contact
There are several possible means of communicating with the control center:

- **Joint communications**
  You can connect external communications modules via the V.28 interface for transmission in joint traffic. The standard protocols are freely selectable (IEC 60870-5-101, DNP3.0, Modbus RTU). Additional protocols are available on request.

- **Dial-up traffic**
  Various connection-oriented transmission media are supported as standard via dial-up traffic (analog, ISDN, GSM, TETRA).

- **LAN/WAN**
  In the case of communication via LAN/WAN networks, transmission is implemented either in accordance with IEC 60870-5-104, IEC 61850 or DNPi.

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**LC display**

**4 function keys**

**3 LEDs for status (POK, RY, ER)**

**2 LEDs for Ethernet**

**2 LEDs for RS-232**

**2 LEDs for RS-485**

**2 LEDs for Ethernet**

**SD memory card**

**Connection for RJ45/Ethernet**

**Connection for RS-232 (underneath)**

**Connection for RS-485 (underneath)**

**SICAM I/O coupling module**

**SICAM I/O modules (max. 6 modules possible)**
Rounding up the points: An overview of SICAM CMIC

### SICAM CMIC: Portrait
- Maintenance-free, small compact device for mounting on DIN rail; max. 6 expansion modules
- Local operation via 4 function keys and display
- 12 digital inputs for messages
- Ethernet-LAN 10/100BASE-TX, 2 ports, RS-485 and RS-232/IV.24 interfaces with the common protocols: IEC 61850 server/client, IEC 60870-5-101/-103/-104, Modbus, DNP3.0, DNP(i), etc.
- Freely programmable user programs in accordance with IEC 61131-3
- Configuration via SICAM WEB, alternatively with SICAM Toolbox II
- Simplified service thanks to SD card (storage of parameters and firmware)
- Tomorrow’s security standard (BDEW White Paper conformity and integrated crypto chip)
- Diagnosis via SNMPV3 integrated IPSec encryption

### SICAM CMIC: Technical data

<table>
<thead>
<tr>
<th>Digital inputs and outputs</th>
<th>12 electrically isolated digital inputs (from 24 to 60 V DC) – 1 x 4 with common root and 1 x 8 with common root</th>
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<tr>
<td></td>
<td>8 digital outputs – 4 x 2 outputs with one common normally-open contact each</td>
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<td></td>
<td>Expansion modules: see SICAM CMIC order designation (page 7)</td>
</tr>
<tr>
<td>Communications interfaces</td>
<td>2 x Ethernet-LAN TCP/IP 10/100BASE-TX for communication and engineering</td>
</tr>
<tr>
<td></td>
<td>1 x RS-485 (electrically isolated), 1 x RS-232</td>
</tr>
<tr>
<td>Protocols</td>
<td>IEC 61850 server/client, IEC 60870-5-101/-103/-104, Modbus RTU, DNP3.0, DNP(i), NTP/SNTP, vendor-specific protocols on request</td>
</tr>
<tr>
<td>Operating elements and displays</td>
<td>Power, Ready and Error LED, status LEDs of the communications interfaces</td>
</tr>
<tr>
<td></td>
<td>Display for local indication (128x96)</td>
</tr>
<tr>
<td>Supply voltage</td>
<td>DC 18 – 72 V</td>
</tr>
<tr>
<td>Internal real-time clock and external synchronization</td>
<td>+ / −2 ppm, with maintenance-free buffering</td>
</tr>
<tr>
<td></td>
<td>Automatic summer/winter time changeover SNTP time server (Network Time Protocol)</td>
</tr>
<tr>
<td>Electromagnetic immunity</td>
<td>IEC 60870-2-1, IEC 61010, IEC 60255-5, IEC 61000-4, EN 55022, CE mark</td>
</tr>
<tr>
<td>Type of protection</td>
<td>IP20, Front IP40</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>From –40 to +70°C</td>
</tr>
<tr>
<td>Housing, dimensions, installation and connections</td>
<td>Plastic, 128 x 124 x 123 mm (W/H/D)</td>
</tr>
<tr>
<td></td>
<td>DIN rail mounting</td>
</tr>
<tr>
<td></td>
<td>Screw terminals from 0.2 to 2.5 mm²</td>
</tr>
</tbody>
</table>
Meets all requirements: The multitalented SICAM CMIC in operation

<table>
<thead>
<tr>
<th>SICAM CMIC Order designation</th>
<th>Description</th>
<th>MLFB number</th>
<th>Type</th>
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<tr>
<td>SICAM CMIC basic device</td>
<td>DC 24 – 60 V, Temperature range -25 to +70 °C</td>
<td>6MF2101-0AB10-0AA0</td>
<td></td>
</tr>
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<td>SICAM CMIC basic device</td>
<td>DC 24 – 60 V, Temperature range -40 to +70 °C</td>
<td>6MF2101-1AB10-0AA0</td>
<td></td>
</tr>
<tr>
<td>Binary input</td>
<td>2x8, DC 24 V 1 ms</td>
<td>6MF2811-0AA00</td>
<td>DI-8110</td>
</tr>
<tr>
<td>Binary input</td>
<td>2x8, DC 48 – 60 V 1 ms</td>
<td>6MF2811-1AA00</td>
<td>DI-8111</td>
</tr>
<tr>
<td>Binary input</td>
<td>2x8, DC 110 V 1 ms</td>
<td>6MF2811-2AA00</td>
<td>DI-8112</td>
</tr>
<tr>
<td>Binary output</td>
<td>Relay 8xDC 24 – 220 V / AC 230 V</td>
<td>6MF2821-2AA00</td>
<td>DO-8212</td>
</tr>
<tr>
<td>Analog input</td>
<td>2x2 ±20 mA±10 V</td>
<td>6MF2832-0AA00</td>
<td>AI-8320</td>
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<tr>
<td>Analog input</td>
<td>3xU (230 V),3xV (LoPo)</td>
<td>6MF2851-0AA00</td>
<td>AI-8510</td>
</tr>
<tr>
<td>Analog input</td>
<td>3xU (LoPo),3xV (LoPo)</td>
<td>6MF2851-1AA00</td>
<td>AI-8511</td>
</tr>
<tr>
<td>SICAM CMIC I/O</td>
<td>Coupling module</td>
<td>6MF2881-1AA00</td>
<td>CM-8811</td>
</tr>
<tr>
<td>CT adapter</td>
<td>3xI (5 A/LoPo)</td>
<td>6MF2882-0AA00</td>
<td>CM-8820</td>
</tr>
</tbody>
</table>
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